Optimize Model Performance by Using Worksets in Autodesk® Revit® 2012

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**MP5060:** This class explains how to set up and use Worksets to optimize model performance in Revit Architecture, Revit MEP, and Revit Structure 2012. We will offer time-tested tips to improve your Revit model performance. You will learn how to improve saving and accessing model time by partially loading Revit elements to your model. We will explain how this setup affects your local copy. You will learn how to set Workset standards for your company and get tips on how to model in the correct Workset. We will also perform timing demonstrations using Revit MEP 2012. If you would like to improve your Revit model performance, this is the class for you.

### Learning Objectives
At the end of this class, you will be able to:

- Improve overall model performance
- Assign certain Revit MEP elements to the correct Workset
- Model in the correct Workset
- Set Workset standards for your company

### About the Speaker

*Pedro Rivera has more than 10 years of experience as a mechanical designer/BIM coordinator with RLF, an internationally recognized architecture, engineering, and interior design firm focused in the health care and education markets. Pedro has led the successful implementation of BIM into the mechanical department of the firm, establishing Autodesk® Revit® MEP organization and standards applied to all RLF projects. Pedro has had a significant role in many of the RLF BIM efforts, including the recently designed VA Medical Center, which has received national recognition for its exemplary use of integrated and interoperable building information modeling.*

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### Class Intro

Revit has changed completely how we design and create our construction documents. This model based design tool improves coordination, identifies clashes, creates accurate design schedules, and allows us to create a model with smart elements that will associate with others. Unlike the single file AutoCAD days, now we have Revit models. These models progressively get larger in file size affecting computer hardware, productivity, personnel etc. Models that don't perform at an acceptable rate of speed affect production and poor production can cost a company thousands of dollars. What I mean by model performance is time spent accessing the model, saving to central, loading elements, regenerating views etc. In this class we will talk about the Workset tool in Revit and using this tool to improve model performance specifically. We will elaborate on using Worksets to partially load elements or links you will be working with.

### What are Revit Worksets?

Worksets are a collection of Revit elements like ducts, pipes, ductwork/piping accessories that are assigned to a group called a Workset. It does not necessarily have to be modeled elements, it could also be external Revit or CAD files linked into your model.
There are four kinds of Worksets:

- **User-Created** - Custom Worksets created by the user.
- **Families** - Workset for families in a model. Automatically assigned.
- **Project Standards** - Workset for project standards like project info, model settings, family types etc. Automatically assigned.
- **Views** - Workset for all views in a model. Automatically assigned.

One main purpose of the Workset tool is collaboration of multiple users in one single model. A user can take ownership of an entire Workset or specific element in a Workset.

Currently we are not using Worksets for visibility purposes. Revit already has many visibility tools and we prefer not to add an additional option to manage. Besides, we have adapted our workflow standards in a way that we don't really need Worksets for visibility.

**What are the benefits of using Worksets for partially loading parts of the model?**

1. Accessing model time.
2. Saving to central time.
3. Time loading elements into your model.
4. Accessing and regenerating views.
5. Loading specific Revit links without affecting central the file.

**Past experiences using Worksets for model performance**

Worksets could be very helpful when working on large projects. One example is the VA Hospital in Orlando Fl. This is a project that we started in 2006 as a joint venture with AECOM (formally Ellerbe Becket). The 1.2 mil sq ft project went thru 5 different versions of Revit. We also had a total of 104 Revit models at the final stages of the design process.

Since we had so many linked Revit models, it was helpful loading only the links we needed at that time. It was also beneficial partially loading certain floors of ductwork and pipining.
Improve Overall Model Performance

User Created Worksets

Unlike Worksets that are automatically assigned to a component (like Families, Project Standards and Views), these Worksets are created by the user.

Modeled Elements Worksets

Before creating Worksets for modeled elements in your project, figure out what Workset setup will work for your company or department. Our company’s architectural team has a single Workset for all interior construction and one for life safety elements. In addition to the modeled elements Worksets, they also use a Workset for Revit/AutoCAD links and a Workset for Shared Levels and Grids. For MEP, some companies set up Worksets by systems; supply, return and exhaust. Our mechanical department has model elements Worksets by floors, risers and equipment. For example all modeled ductwork and pipes for level one will be assigned to "Level 1 HVAC", all ductwork and piping in the shafts to "HVAC Risers" and all mechanical equipment to "Mechanical Equipment Workset";

Revit/CAD Links Worksets

Assign all Revit and AutoCAD links to their own Workset. These Worksets are just as important as the modeled element Worksets. You can assign more than one link to a Workset. For example if architecture has a model for the exterior and a model for the interior of the building, structural might put these two Revit links into one “Architectural” Revit link Workset. Since Revit organizes the Workset list alphabetically, use prefixes for these link Worksets so they stay grouped together
in the list. Coordinate with other disciplines the names of these Worksets. Keep in mind that with Revit and AutoCAD links you can have a Workset for the link itself and a Workset for the instance. To avoid confusion, make sure both of these Worksets are the same.

**Shared Levels and Grids Worksets**

In addition to Workset1, this Shared Levels and Grids Workset is created automatically when you click on the Worksets button for the first time in your model. This Workset should have all Levels and Grids in your model. Keep in mind that Revit assigns the Grids and Levels automatically the first time you click on Worksets, however if you add Levels and Grids afterwards, you will need to manually assign them to the “Shared Level and Grids” Workset. To avoid duplicated grids from other links in your model click on Worksets>Select the Revit Link and close the Shared Levels and Grids Workset under the Manage Worksets button.

**Creating Worksets**

After analyzing your Workset needs and project workflow you can create the central model and its Worksets. Once you have created the central model from a template and copy monitored the Levels you can now create the Worksets.

Click on the Collaborate Tab>Worksets>

![Collaborate Tab Worksets](image)

You can also click on the Workset button on the bottom of your Revit session>

![Workset Button](image)

Since this is the first time you will be using the Worksets tool, you will be prompted with this message:

![Worksharing Prompt](image)

Click OK
In the Worksets dialog box, rename "Workset1" and create the additional Worksets>Click OK

Keep in mind that this is the one and only time Revit will assign the Levels and Grids to the "Shared Levels and Grids" Workset automatically. If you copy Levels and Grids after this setup, they will be placed on the current Workset. Make sure you assign them to the correct "Shared Levels and Grids" Workset.

After setting up the Worksets you can set the central file to open specify. This setup will prompt the Revit user with the Worksets dialog box every time that user accesses the model. From the Worksets list the Revit user can specify which Revit Link or Workset they would like to open.

*Central Model Open Specify*

Click on the button>Click Save As Project>Locate the directory of the new project>Click on Options>
Under Open Workset Default>Select Specify...>Click OK>Click Save

Managing Worksets of a Linked Revit File

You can also manage the Worksets of a Revit linked file. We use this tool to remove duplicated column grids from the Revit linked files. We also close the Revit linked files inside this linked file.

Once the Revit linked file is in your model, Go to Manage Links>Click on "Manage Worksets>
Select the Revit links and the "Shared Levels and Grids" ->Click Close>Click Reload>Click OK;

Assign Certain Revit MEP Elements to the Correct Workset

Assigning Revit link Worksets

1. After creating the Revit link Worksets you still have to assign them to the correct Revit link. Once the Revit link Workset is created, link the Revit file into your model>Select the Revit link >Select the Revit link Workset under the Workset pull down from the properties box.
2. Click on Edit Type and under the Workset pull down>Select the same Workset.
3. Pin the Revit ink;

Do the same procedure for AutoCAD files linked into your Revit model.
Model in the Correct Workset

Always pay attention to the current Workset. This is actually a common problem. Sometimes we get carried away and before we know it we have modeled several hours worth of work in the wrong Workset.

Revit 2012 has a new tool called Worksharing Display. Use this tool to visually identify different Worksets in your model. Worksharing Display has the following modes:

- Worksets
- Owners
- Model Updates
- Checkout Status

You can also adjust the visual settings of these modes. Use this tool periodically to make sure everyone is modeling in the correct Workset.

Click on the Worksharing Display button on the View Control Bar>Select Worksets>

In the following screen capture I noticed that the duct elbow is in the wrong Workset, so I assigned it to the correct Workset:
Set Worksets Standards for your Company

It is important that every department in your company is following a consistent method of Workset workflow. If everyone is familiar with the Worksets name and elements assigned to these Worksets, the easier it is for them to access other disciplines models to get the information they need. Also if the Revit linked file is consistent, it is easy for the Revit user to close the Revit link Worksets inside the Revit link in the actual model. We use an Excel chart that contains information specific to Revit models. This Excel chart contains the Workset name for all Revit models involved in a project:
Conclusion

In conclusion the Workset tool is not only a Worksharing tool, it could also be used to optimize the performance of your model. Once your company has standardized Workset workflows, it will make all Revit users more efficient. Setting the models to Open Specify will help accessing the models, especially if computer hardware in your company is limited. Try keeping the amount of Worksets to a minimum, this will reduce the chances of people modeling in the wrong Workset. Like anything else when working with Revit, communicate with other Revit users what you are trying to accomplish.